Executive Summary and Key Findings

Significant global energy demand growth and rising living standards in China, India, and the Middle East, coupled with technological breakthroughs continue to alter the fundamentals of oil and gas (O&G) production, creating unprecedented opportunities for U.S. O&G equipment exporters in the near-term. New technologies have allowed the development of O&G resources that were previously considered uneconomic. The dramatic changes in the sector offer new commercial opportunities for U.S. O&G equipment manufacturers to penetrate new markets, gain share in existing markets, and revisit previously declining or over-regulated markets despite declining global oil and gas prices. These fast-developing trends also present an important opportunity for U.S. O&G equipment sales through focused export promotion efforts.

ITA's *2015 O&G Equipment Top Markets Report* ranks 75 markets based on export potential for U.S. O&G technologies through 2018. The report is designed to help U.S. companies identify those O&G markets where export activities can make the biggest impact.

Each market has different challenges and opportunities and thus business leaders will need to adapt commercial and development strategies within each market accordingly. ITA believes that by evaluating a country's market size, resource endowment, and investment climate, appropriate strategies become clear. In particular, we note that exporters should also consider the risk and potential reward associated with each market.

The rankings in the study represent those countries with the greatest potential for U.S. exports (see Table 1: Top 30 Oil & Gas Export Markets). However, higher rankings do not necessarily indicate markets with the greatest commercial opportunities, but rather a country where there is commercial activity in the oil and gas sector. The ranking is meant as a descriptive ranking where exporters are likely to have a higher chance of finding commercials opportunities.

The greatest market opportunities for O&G equipment exports include Australia, Brazil, Canada, China, Colombia, Ghana, Israel, Mexico, Norway, and the United Arab Emirates. Burma and Mozambique are also projected to become major sources of investment and export destinations for U.S. equipment manufacturers.

The *2015 O&G Equipment Top Markets Report* highlights the opportunities and challenges for U.S. businesses in these markets. Our methodology identified additional potential markets as well as "countries to watch." The case studies in this report were selected based on commercial opportunity and interest from U.S. exporters. (see Appendix I: Country Rankings, for the full list of country rankings)

Overview of the Upstream Oil & Gas Equipment Market

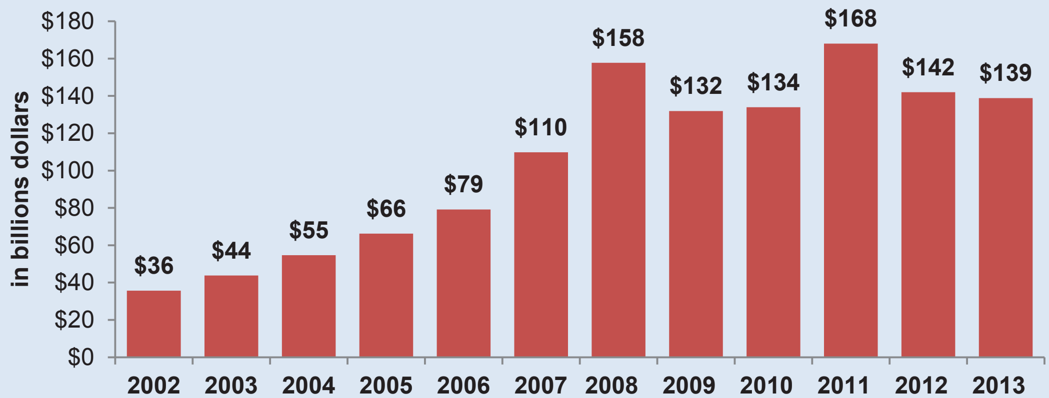
For the purposes of this report, the upstream O&G equipment industry is defined as establishments primarily engaged in:

1) Manufacturing of O&G field machinery and equipment;
2) Manufacturing O&G field production machinery and equipment;
3) Manufacturing O&G field derricks; and,
4) Manufacturing pipe and tube.

Table 1: Projected Top Markets for Upstream Oil and Gas Equipment Exports (2015-2018)

1.	Canada	7.	UAE	13.	Saudi Arabia	19.	Ghana	25.	Trinidad & Tobago
2.	Colombia	8	Nigeria	14.	Angola	20.	Russia	26.	Turkey
3.	Brazil	9.	China	15.	Bahrain	21.	Equ. Guinea	27.	Malaysia
4.	Mexico	10.	Venezuela	16.	Israel	22.	Singapore	28.	Qatar
5.	Australia	11.	Oman	17.	Ecuador	23.	Peru	29.	Algeria
6.	Norway	12.	United Kingdom	18.	Iraq	24.	India	30.	Chile

Figure 1: World Market for Oil & Gas Equipment



Source: UN trade data, using exports to the world

The United States is home to many upstream O&G equipment industry companies and U.S. companies are competitive internationally in this field.

Over the past ten years, the global market for upstream O&G equipment has increased by a compounded annual growth rate of 12.2 percent, from $36 billion (bn) in 2002 to $138.9bn in 2013 (see Figure 1: World Market for Oil & Gas Equipment). World exports peaked at $168 bn in 2011 but remained substantial thereafter ($142 bn in 2012). We expect world exports to increase in the years ahead, consistent with intensifying demand in emerging markets and growing demand for innovative upstream technologies in which U.S. firms excel.

The significant market growth over the previous decade demonstrates expanding energy needs worldwide and increased demand for equipment within this sector. Today the United States is the world's third largest exporter of equipment in the O&G sector, with close to $14bn in exports. In 2013, Korea represented 18 percent of global exports; China represented 15 percent while the United States represented 10 percent of these exports by value. However, the United States' share of the global market for equipment is shrinking, while exports from the United States are projected to reach $19.1bn by 2018, the total of U.S. global market share is projected to decline to below 10 percent (see Figure 2: Top 5 Exporting Countries for Oil & Gas Equipment (Including Pipe)).

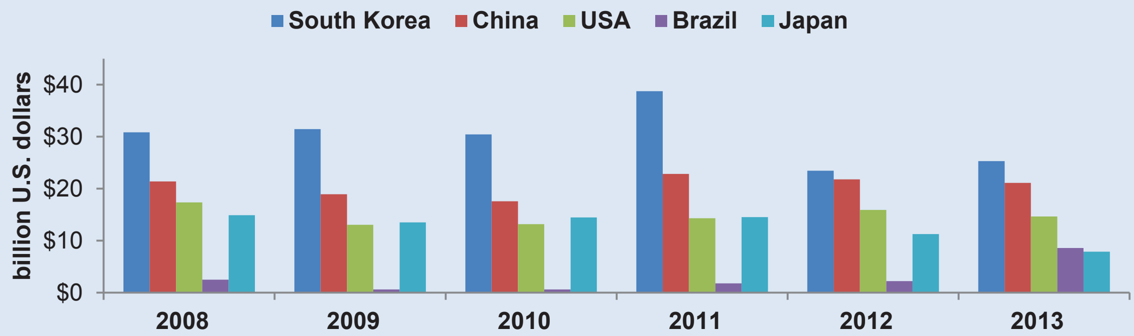
The changes in the international O&G equipment market place are the result of increased competition from East Asian suppliers and greater demand for equipment within the United States. Increased manufacturing capabilities and low-cost production has allowed Chinese firms to displace U.S. market share particularly in low-tech parts and components. At the same time, the shale gas boom has increased demand for equipment, both foreign and domestic, in the United States, decreasing U.S. exports.

It is important to consider the nuances of the O&G industry when evaluating international opportunities. The O&G industry includes a wide variety of products and thus the export profile of the United States varies considerably relative to other markets. Some markets that are long established O&G producers demand capital-intensive high-tech seismic and drilling equipment, while other markets that have just discovered O&G resources seek to import for more conventional drilling equipment and services for infrastructure development.

Regardless of market, U.S. exports are often differentiated from those of other countries by type—U.S. exports are particularly competitive in high end sinking and boring parts and parts for derricks, whereas those from Korea are concentrated in vessels with derricks with little sinking or boring parts and those from China are concentrated in vessels with drilling platforms and equipment and pipe. These trends will likely continue with U.S. exports weighted more toward specialized high tech exports especially relating to unconventional O&G production.

The projected increase in demand for exports of O&G equipment products may be further driven by the fundamental changes in U.S. O&G production in the last several years. Having been among the first in the world to develop unconventional and ultra-deepwater

Figure 2: Top 5 Exporting Countries for Oil & Gas Equipment (Including Pipe)



Source: UN export data

resources, U.S. equipment manufacturers and service suppliers have the opportunity to seize the first-mover advantage in overseas markets that are seeking to emulate the United States' rapid expansion in energy production.

In addition to being a large exporter, the United States is also a large importer of O&G field equipment and pipe. With about $12 billion in imports in 2013, the United States was the largest importer of O&G equipment, purchasing about 9 percent of all global O&G equipment sold worldwide. Other large importers include Singapore with a 6 percent share of global imports, as well as the UAE, Mexico, Netherlands, Canada, Norway and China, which each capture three percent.

Recently, the value of U.S. imports and exports began to converge, likely as a result of increased investment and production in unconventional resources such as shale gas and shale oil, as well as increased investment in the Outer Continental Shelf in the U.S. Gulf of Mexico. Although the equipment sector is having an increasingly negative impact on the U.S. balance of trade, the decline in exports represents an increase in O&G activities and foreign investments in the United States' O&G sector overall.

Rankings in a Risk/Reward Context

The O&G sector can generate large profits, but has always been characterized by a high degree of risk. O&G companies are faced by a number of risks not only related to finding oil or gas under the ground, but also financial, political and security risks that exist above ground. The *2015 O&G Equipment Top Markets Report* analyzes those countries with the most potential for equipment sales against the associated risks and rewards of that country's O&G sector.

The top 20 countries from the *2015 O&G Equipment Top Markets Report* are plotted below on a Risk-Reward Matrix, which illustrates each country's relative upstream risks and rewards. The rewards are heavily weighted toward below ground resources, while the risks are more weighted toward above ground government policy. In a case such as Norway, which has large O&G reserves, a company might encounter few unanticipated regulatory challenges (i.e. low risk), but would also have lower profits (i.e. lower reward) from investments. In contrast, a country such as Ghana may potentially yield significant profits in the O&G equipment sector, but there are a greater number of risks (i.e. import regulations, corruption, infrastructure constraints) that companies will have to consider when conducting business there.

Export Strategy Considerations

Analyzing markets against the risk/reward matrix provides a framework by which exporters can apply strategies for markets based on specific criteria. The *2015 O&G Equipment Top Markets Report* uses the risk/reward matrix, expertise from our Commercial Service Officers in country and sector-specific analysis to provide a suite of policy options to support U.S. O&G equipment exports.

The *2015 O&G Equipment Top Markets Report* outlines a set of export strategies focused on O&G equipment exports that will have different options for specific markets. Segmenting those markets with large U.S. market share and small U.S. market share will impact

Table 2: Differentiated Export Strategies by Market Size/Type

Large U.S. Market Share			Small U.S. Market Share		
Risk/ Reward Quadrant	**Export Strategy**	**Examples**	**Risk/ Reward Quadrant**	**Export Strategy**	**Examples**
High Risk/High Reward	• Engage with the U.S. Commercial Service to better understand specific risks of exporting. • Research regulatory constraints impacting targeted portfolios of the oil and gas sector.	Saudi Arabia	**High Risk/High Reward**	• Engage with the U.S. Commercial Service to better understand specific risks of exporting. • Short-term delivery contracts to reduce market exposure.	Iraq, China, Brazil
Low Risk/High Reward	• Export strategy can be focused directly on business development. • Identify major operators in country.	Canada, Colombia, Australia	**Low Risk/High Reward**	• Understand import regulations and other potential import restrictions. • Long-term business development strategy if no competitors present in market.	Oman
Low Risk/Low Reward	• Maintain perspective on the state of hydrocarbon development. • Determine if product is appropriate for the state of development of a particular market's oil & gas sector. • Research presence of foreign competitors.	Ghana, United Kingdom	**Low Risk/Low Reward**	• Attend trade shows in country if appropriate. • Establish business relationship with major operators in country. • Limit business development activities if market does not appear to be appropriate for product or service.	Norway, Bahrain
High Risk/Low Reward	• Engage with U.S. Commercial Service to understand specific risks of exporting. • Work with established chambers of commerce in country to reduce risks.	Mexico	**High Risk/Low Reward**	• Work with U.S. Commercial Service to understand market restrictions (sanctions, import tariffs, etc.) • Link with local companies or regional distributers. • Limit exposure to market in the event of regulatory disruptions.	Burma

the types of commercial export strategies that could be deployed.

We have added an additional layer to the risk/reward analysis: the market share captured by U.S. O&G equipment exporters already in the market. As U.S. companies have flexibility in terms of selecting target markets, the extent to which U.S. exports have penetrated a particular market is an indicator of the ability of supporting additional U.S. companies to export to that country.

A large U.S. market share in a country indicates a more favorable commercial environment for private sector companies, while a small U.S. market share could indicate a more restrictive commercial environment. Given these macro differences, export strategies in the O&G sector should be adjusted and accommodate the difference respective to a country's commercial challenges and opportunities.

Countries with little U.S. market share and low risk could indicate a number of challenges, both above ground and below ground. In Norway, for example, declining production may be impacting U.S. commercial interests, limiting U.S. market share.

In markets with little U.S. market share and high risk, U.S. exporters should consider a different export strategy. Instead, business development may be less aggressive to limit exposure to potential institutional, regulatory, or market barriers. For instance, in China regulatory challenges often present intractable barriers that keep U.S. market share low.

However, countries with large U.S. market share and are low risk should deserve more attention with a clear focus on sustained business development. Especially for companies that are new to export, exploring business development opportunities in countries with well-established O&G sectors with many foreign companies can reduce exposure to risk and profit loss.

Methodology

Ample data exist to analyze upstream O&G exploration equipment, allowing detailed export and import projections and trends through 2018. The analysis in this report relies primarily on export data to support the policy recommendations.

To determine its rankings, the *2015 O&G Equipment Top Markets Report* employed a modified “score card” analysis that grouped countries with greater or lesser amounts of opportunities for increased exports from the United States.

The score card methodology used in this study employed qualitative and quantitative indicators to measure future opportunity for exports from the United States. Indicators included are: (i) proximity of a country to the United States; (ii) U.S. export trends for O&G field equipment; (iii) the U.S. share and the market size of a country’s O&G equipment imports; (iv) a country’s future natural gas and oil production and reserves; (v) total upstream project investments in the country; (vi) an institutional risk assessment variable; (vii) and a qualitative ranking of the country as an export destination (see Appendix I: Methodology, for greater detail of the O&G top markets methodology).

For each of the major export opportunity indicators, the quantitative information was ranked and then re-grouped into quartiles for each of the 75 key countries involved in upstream activities. The “score” for each indicator was an average of the quartile ranking across the sub categories, which are then summed for a final score. Using quartiles allows for relative rankings rather than absolute rankings; that is, the rank is an indicator showing whether the export opportunity indicator is a high (quartile rank 4), medium high (quartile rank 3), medium/low (quartile rank 2), or small/low range (quartile rank 1). Analyzed as a whole, this approach allows the top prospective markets across multiple “best” categories to rise to the top.

<u>*Caveats*</u>
The *2015 O&G Equipment Top Markets Report* focuses on upstream U.S. O&G equipment exports to draw larger conclusions about the nature of the global O&G sector as a whole. As export data on services is neither readily available nor consistent across markets, trade statistics for O&G equipment are used as a proxy indicator for services exports. If a country imports O&G equipment, it will likely have associated trade in services related to O&G exploration and production as well.

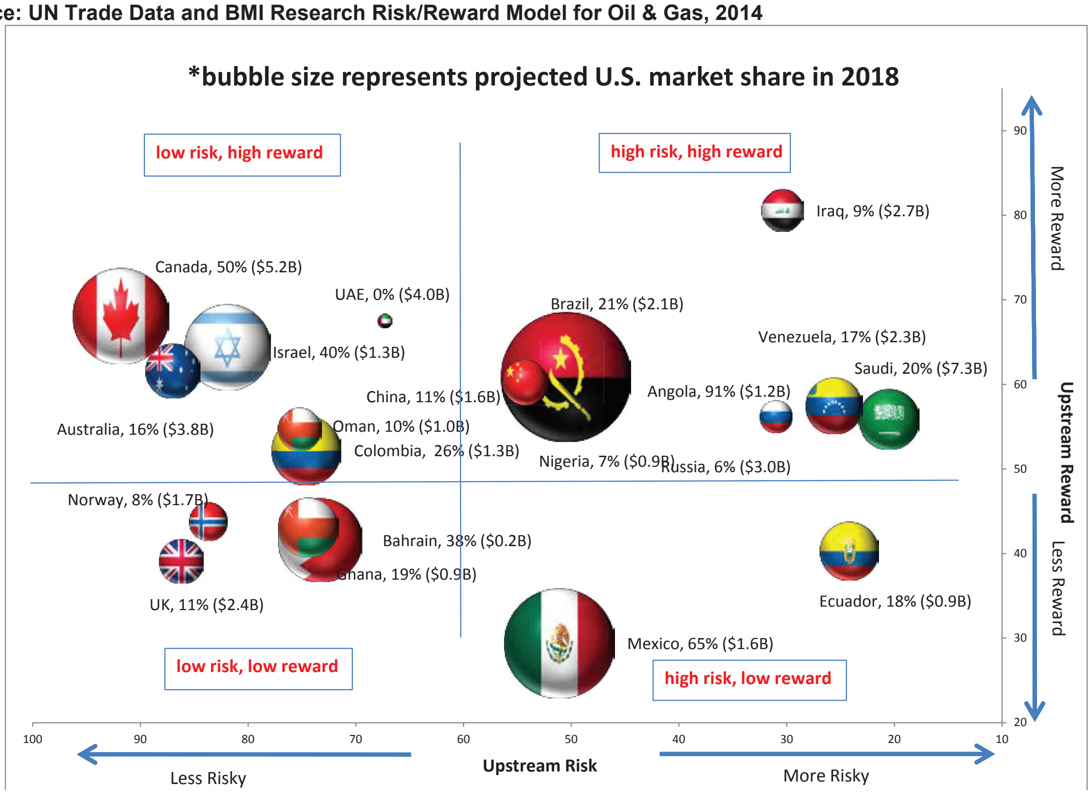


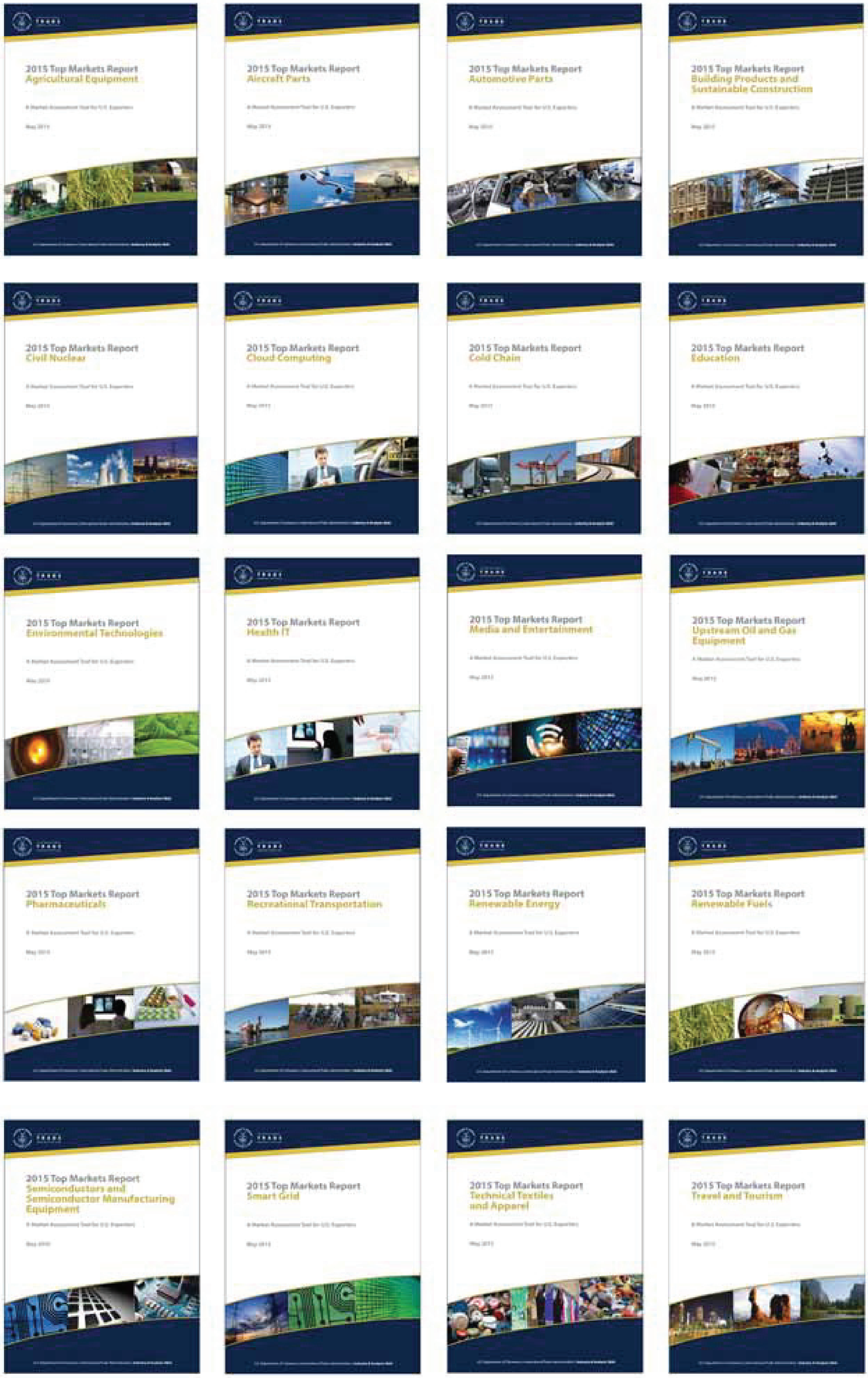
Figure 3: Import Markets* for Equipment & Pipe for the Top 20 Markets
Source: UN Trade Data and BMI Research Risk/Reward Model for Oil & Gas, 2014

The report uses country data on O&G resource endowments as an indicator of demand for O&G equipment, but does not evaluate international trade in crude oil or natural gas. The U.S. government promotes the export of equipment for O&G exploration, production, transportation, refining and storage. However, the International Trade Administration does not promote the export of U.S. produced crude oil or U.S. produced natural gas.

This analysis also does not take into consideration the recent fluctuations in the international price of oil and its impacts on the O&G sector. While the price of crude oil will impact a company's investment decisions, this report employs historical data to analyze global exports of equipment and current O&G resource endowments.

Case Studies

Ten countries were identified from the top 20 for greater analysis: Australia, Brazil, Canada, Colombia, China, Ghana, Israel, Mexico, Norway, and the United Arab Emirates. Mozambique and Burma were also added as "countries to watch," as they are both emerging with significant resource endowments, but those resources have only been developed in a limited manner to date. The markets in the *2015 O&G Equipment Top Markets Report* represent a range of opportunities to demonstrate the typography of commercially focused opportunities in the O&G sector. The full list of rankings is located in Appendix II: Full Country Rankings. In addition, a discussion on U.S. equipment exports focused on the unconventional O&G development and ultra-deepwater sub-sectors is also included as well as address the individual country analyses.



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